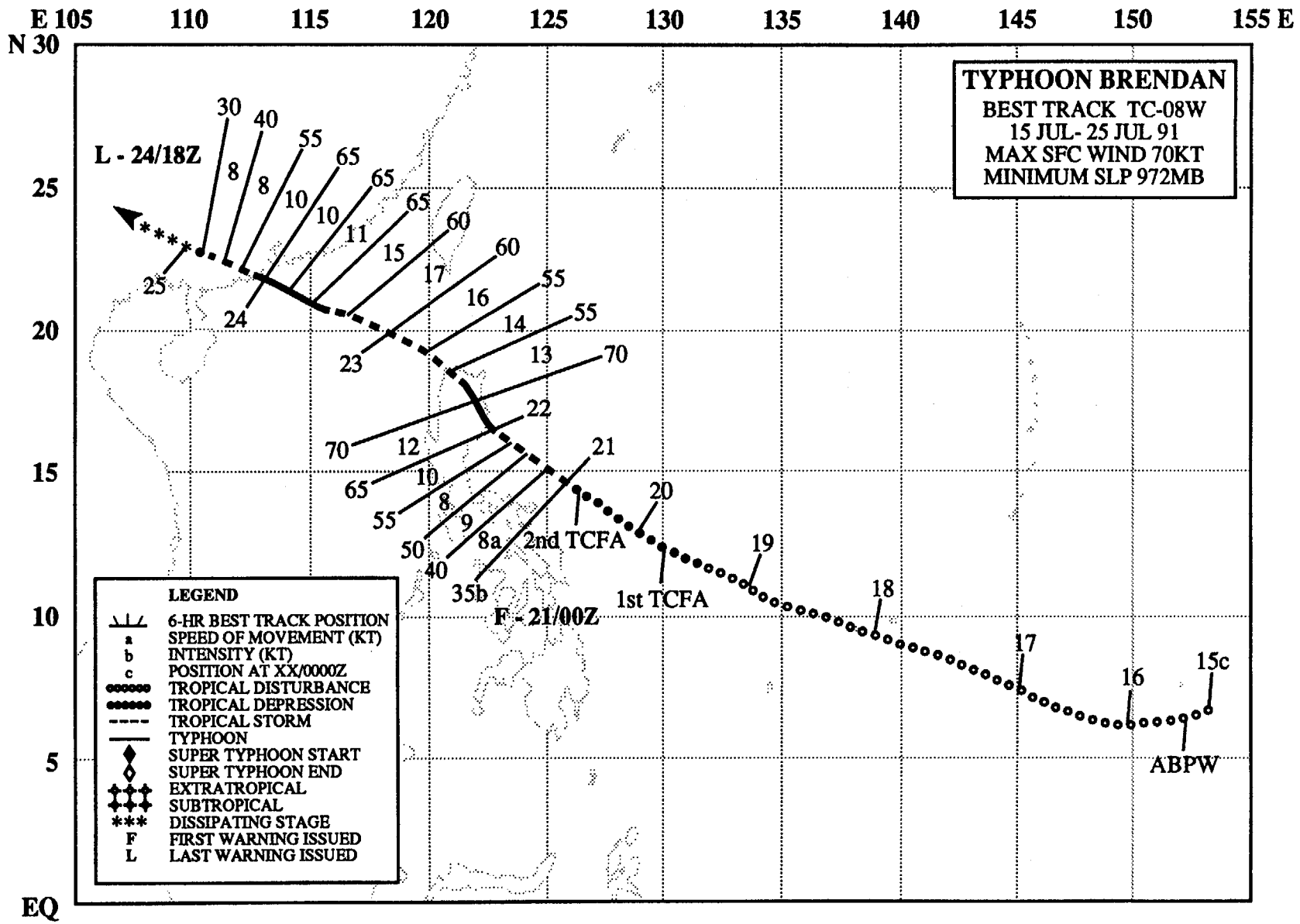
TYPHOON BRENDAN
BEST TRACK TC-08W
15 JUL- 25 JUL 91
MAX SFC WIND 70KT
MINIMUM SLP 972MB
E 105
110
115
120
125
130
135
140
145
150
155 E
N 30
25
20
15
10
5
EQ
L - 24/18Z
F - 21/00Z
1st TCFA
2nd TCFA
ABPW
LEGEND
6-HR BEST TRACK POSITION
a SPEED OF MOVEMENT (KT)
b INTENSITY (KT)
c POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED

62

TYPHOON BRENDAN (08W)

I. HIGHLIGHTS

The third tropical cyclone of July, Brendan was the third straight-runner in a row. Torrential rains associated with the tropical cyclone's passage across northern Luzon unleashed lahars or avalanches of volcanic debris, mud and boulders in the valleys near Mount Pinatubo. The forecast models performed very well throughout the duration of this tropical cyclone, and JTWC's forecast errors were below average.

II. TRACK AND INTENSITY

A weak surface circulation developed 70 nm (130 km) south-southeast of Chuuk in the central Caroline Islands on 15 July. The cloud system tracked generally west-northwestward for several days until it moved into an area of increased upper level divergence in the central Philippine Sea on the nineteenth. At 191800Z, JTWC issued the first Tropical Cyclone Formation Alert. At that time the system was located approximately 230 nm (425 km) east of the Philippine island of Samar. Due to the extreme diurnal fluctuations in the system's convection which delayed intensification, JTWC re-issued the alert at 201800Z. The first visual satellite imagery available later that morning showed significant low-level cloud lines north of an organized surface circulation. This level of organization coupled with a low shear environment and warm sea surface temperatures, prompted JTWC to issue the first 72-hour tropical cyclone warning on Tropical Depression 08W at 210000Z.

Tropical Depression 08W was upgraded to Tropical Storm Brendan on the 210600Z warning, based on a Dvorak intensity estimate of 35 kt (18 m/sec). Intensification continued over the next 36 hours, and the system reached marginal typhoon intensity before making landfall over northern Luzon. Initially it appeared that the system would track more northward along the coast to the east of the Sierra Madre mountain range rather than over the mountains. However, after making landfall, Brendan continued to track northwestward across the mountains and emerged at tropical storm intensity on the northwestern coast of Luzon at 221200Z (Figure 3-08-1). As Tropical Storm Brendan accelerated to the west-northwest away from northern Luzon, it began to reintensify, attaining typhoon intensity for a second time at 230000Z (Figure 3-08-2) in the South China Sea. The peak intensity of 75 kt (39 m/sec) occurred at 231200Z, approximately 12 hours before the typhoon made landfall over southeastern China approximately 30 nm (55 km) southwest of Macau. After making landfall, Brendan continued to move northwestward and weaken. JTWC issued the final warning on this tropical cyclone at 241800Z, as it was dissipating over land.

III. FORECAST PERFORMANCE

JTWC performed well with mean forecast errors of 94, 127 and 158 nm at 24 , 48 and 72 hours respectively. In comparison, as a measure of skill the climatology-persistence model CLIPER had errors of 113, 238 and 370 nm for the same time periods. Initially, JTWC forecasts were to the south of the actual track.

IV. IMPACT

Brendan had a significant impact on both the Philippines and China. In the Philippines, torrential rainfall combined with volcanic debris from Mt. Pinatubo's June eruption to produce mudflows (lahars) up to 15 feet high in the river valleys near the volcano. Three fatalities were

reported. In addition, 1400 homes were destroyed and 10,000 people evacuated. Peripheral winds and rain from the typhoon brushed across Hong Kong causing 16 minor injuries due to flying debris. Waglan Island (WMO 45009) to the south reported winds of 55 kt (29 m/sec) gusting to 80 kt (41 m/sec) while Hong Kong's Kai Tak airport (WMO 45007), which was more sheltered, recorded winds of 35 kt (18 m/sec) gusting to 55 kt (28 m/sec). However, China was greatly impacted by Brendan, which exacerbated the flooding situation already present from abnormally high spring and early summer rainfall. At least 100 fatalities were attributed to the typhoon as it moved inland.

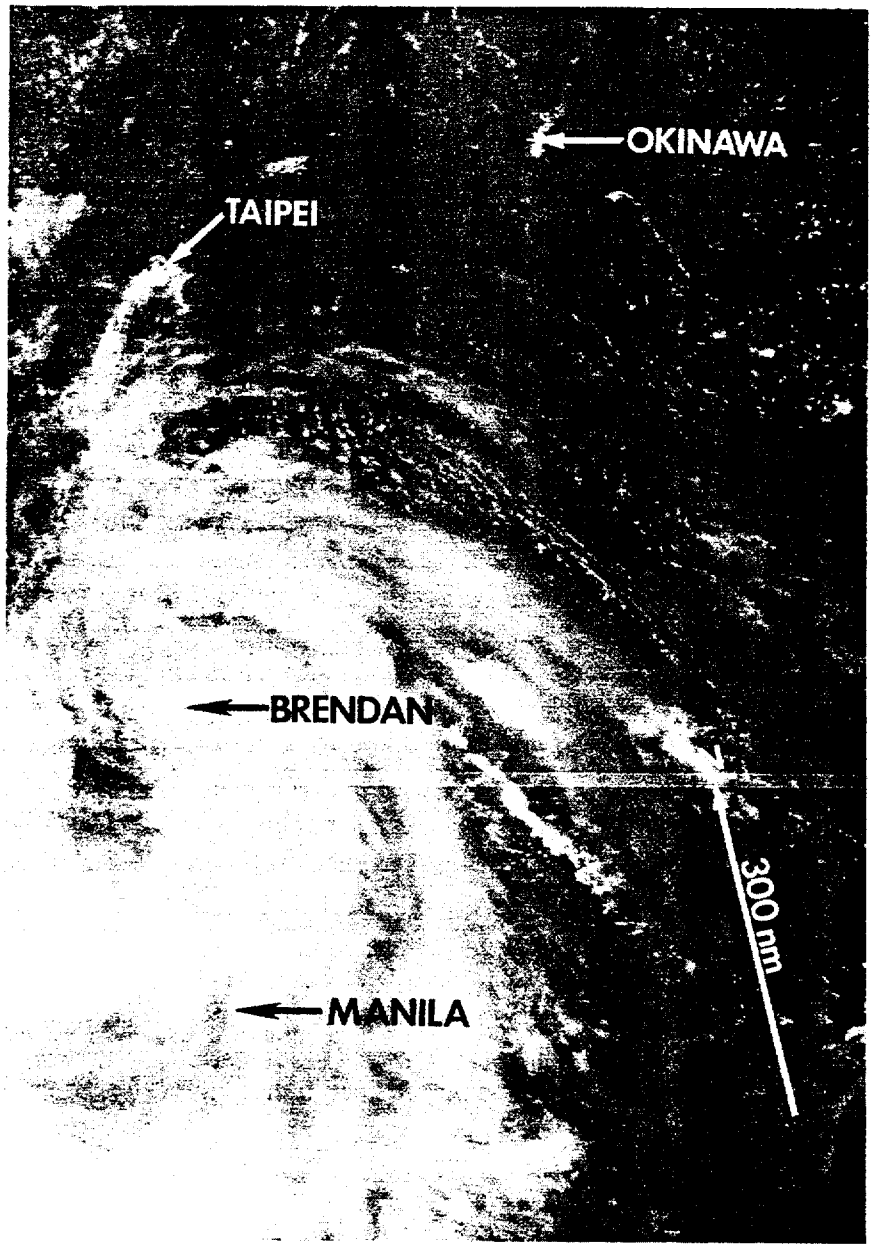

Figure 3-08-1. Brendan at tropical storm intensity shortly after moving off Luzon into the South China Sea (221253Z July DMSP infrared imagery).

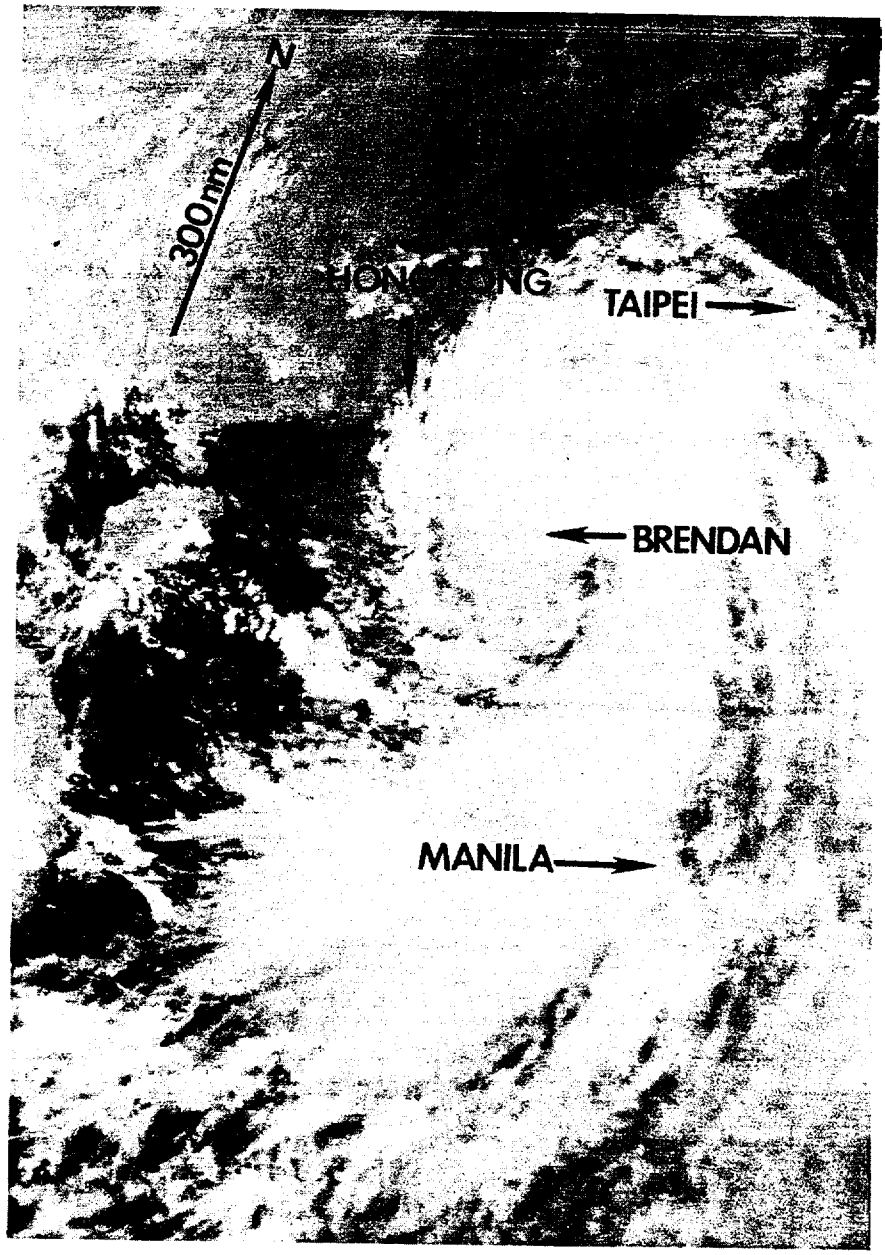

Figure 3-08-2. Brendan just after being upgraded to typhoon status in the South China Sea (230133Z July DMSP visual imagery).